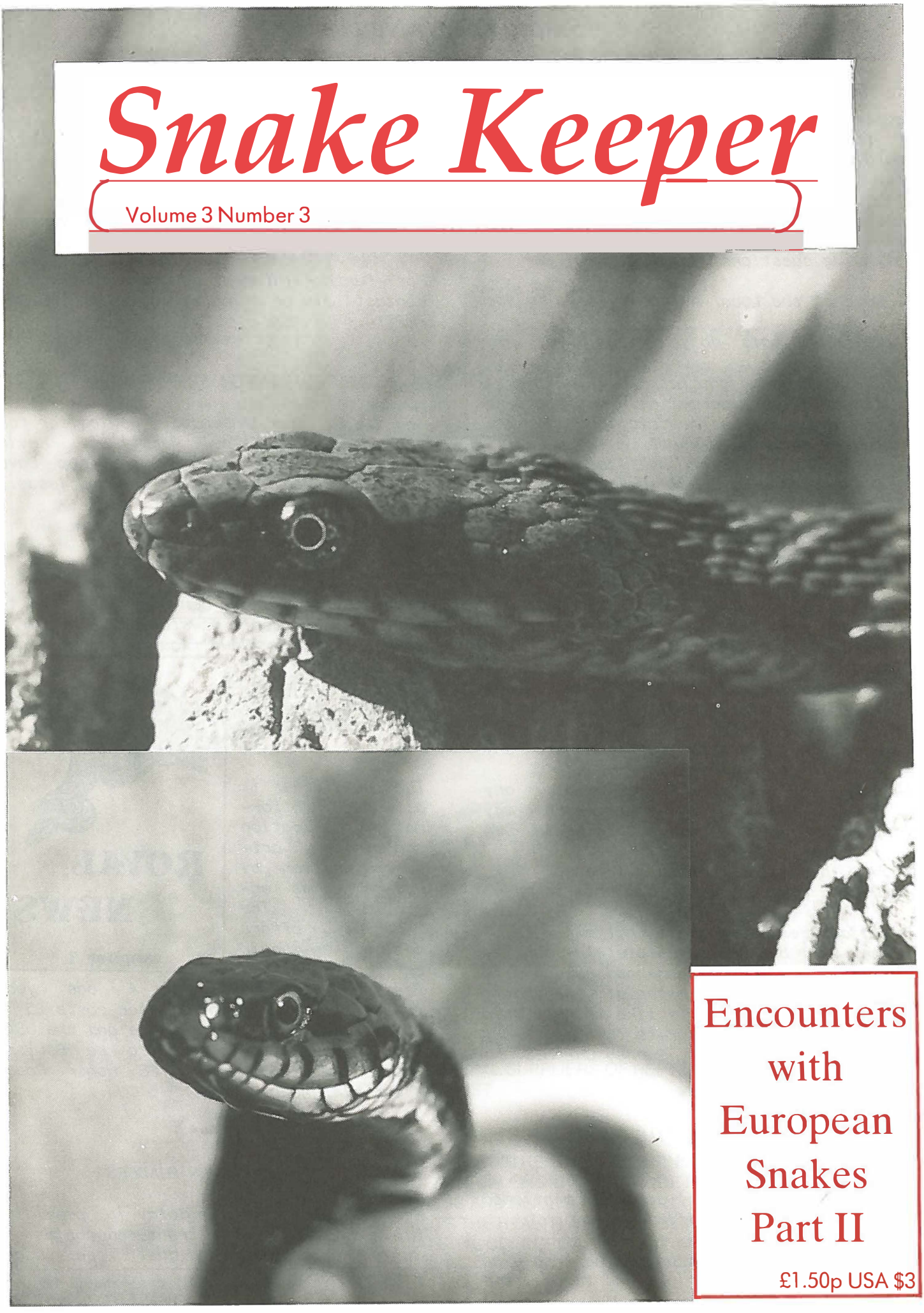
Snake Keeper

Volume 3 Number 3



Encounters with European Snakes Part II

£1.50p USA $3

DANGEROUS WILD ANIMALS ACT 1976

Dave Neville is undertaking an appraisal of the Dangerous Wild Animals Act and would like to hear from any UK readers who keep animals which require a DWA licence.

Dave is starting an in-depth study of the 1976 Act and would like answers to the following questions.

1. Name of the Local Authority issuing the licence.
2. Which animals do you keep (type and number)?
3. Are there any special conditions written into the licence eg. restrictions on movement and restrictions on the number of species kept?
4. What is the cost of the licence?
5. Do you require a Fire Brigade inspection?
6. Does the Environmental Health Inspector take photographs of the animals?
7. What notice given prior to inspection?
8. Have you ever had a licence refused?
9. Was a reason given for its refusal?
10. Have you appealed against such a refusal to a Magistrates Court?
11. What was the result of the appeal?
12. Does the Veterinary Officer accompany the Environmental Health Officer during an inspection?
13. Does the Veterinary Officer have any specialist knowledge?
14. Are you asked to disclose any convictions against you which may preclude you from obtaining a DWA licence?
15. How long have you held a licence?
16. Do you have any other comments to make?

David assures respondents that all information will be treated completely confidentially and NO names and addresses will be disclosed in any material eventually published. If you would like to help Dave with his research, write to him at 22, Foxearth Road, Selsdon, Surrey CR2 8ED.

*****

AMPHIBIAN REPTILE CLUB

Progress has been made in the formation of the new herpetological society mentioned in last month's classified page.

The society will be known as the Amphibian Reptile Club and meetings are to be held on the last Saturday of each month in Aldershot. The annual membership fees will be:

Adults £5 Juniors £2.50 Family £10

Discussions about different species of reptiles and amphibians are planned for future meetings and outings to various venues are also being arranged.

For further information about the A.R.C. contact Jim or Shiralee Hughes on (0252) 702714.

*****

NEW EDITOR FOR 'THE HERPTILE'

The I.H.S. has announced a new editor for their journal 'The Herptile'. Kevin Hingley will be taking over from Dave Blatchford beginning with the June issue.

*****

ROYAL PYTHON NEWSLETTER

Royal Python owners can now subscribe to their own quarterly newsletter. The first issue of 'Royal News' was published last month and the editor, Lee Bowler, is now hard at work on the second issue.



The newsletter is a 12 page, A5 format publication containing articles written by Python regius enthusiasts. The first issue offers advice on basic care, heating, feeding and housing. A one year subscription to the newsletter costs £5 in the UK and £6.50p for Europe and the USA. For further details write to Lee Bowler, 'Royal News', Braemar, 28 Honor Road, Great Missenden, Bucks HP16 ONJ.

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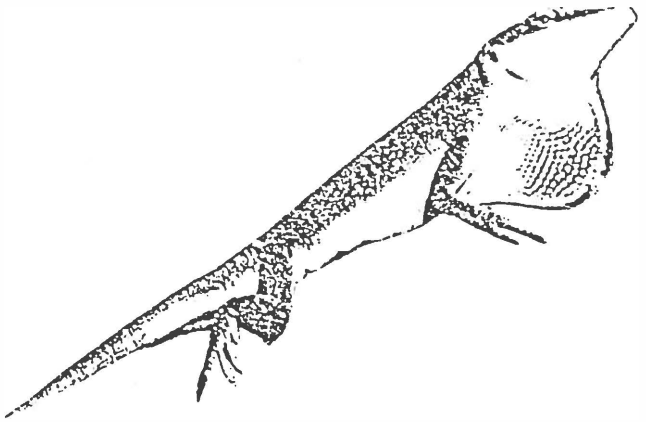
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Front cover:
Dice Snake, Natrix tessallata (top) and Grass Snake (black variety), Natrix natrix
Photographs: Werner Munsch

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Encounters with European Snakes, Part II

by Werner Munsch

The Leopard Snake
(Elaphe situla)

Without doubt this is the most attractive of European snakes. It need fear no competition when being compared to its tropical cousins. When I was alerted by songbirds panicking I was able to find a normally marked form several times in Dalmatia (Yugoslavia). These snakes can climb extremely well but they can also be found amongst rocks and in vineyards. It feeds on young mice and nestling



Right Elaphe situla in Dalmatia.
Photo: Werner Munsch



Biotope of the Leopard and Aesculapian Snakes *Photo: Werner Munsch*



Biotope of the Grass Snake, Natrix natrix Photo: Werner Munsch

birds. One morning, en-route to a bathing pool, I saw a snake flee from the path and vanish into a pile of rocks. From what I had seen this snake was unknown to me. Naturally I carefully excavated the pile of rocks to try to take a few photographs. During this process I received several bites which bled very freely. I finally unearthed a beautifully marked snake with longitudinal stripes. I thought it was a species closely related to the Leopard Snake which was confirmed when I consulted some of my books on my return to Munchen to find that Leopard Snakes can come in two varieties. Unfortunately I was unable to photograph this snake because the film jammed in my camera.

The Grass Snake (Natrix natrix)

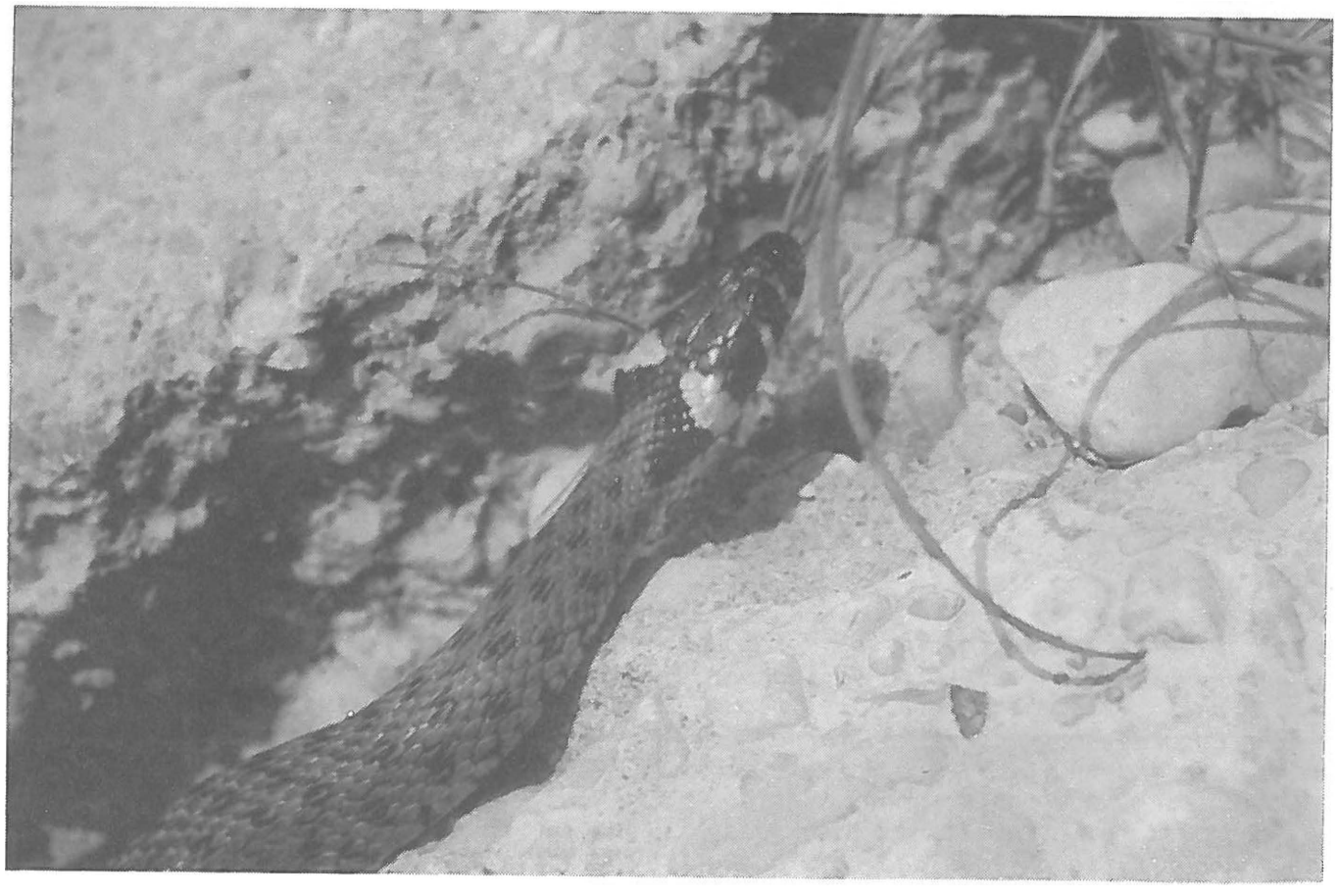
Of the snakes whose lifestyle is closely dependant upon water the Grass Snake is the most widely distributed. I have found them everywhere where there is marsh, heath, lake, stream or river. They occur all over Europe, especially in the warmer countries in the south. I have only seldom seen this snake anywhere without water and even then there was a ditch within easy reach. About fifteen years ago this snake was quite common and specimens over 120 cm could regularly be found. Nowadays one is lucky to see even one specimen. One can only hope that many more young will be allowed to grow to maturity. As opposed to the Smooth Snake, a Grass Snake which bites is quite a rarity. Of the many which I have handled only a few did not discharge the foul-smelling contents of their anal glands or defacate. I have found striped and even black varieties along the length of the Yugoslav coast. I found black specimens which shone even more than Coluber viridiflavus carbonarius in Dalmatia (see Part One). For several years I kept a 100cm long black female in an outside enclosure. In its second year it mated with a much smaller normally coloured male. Unfortunately the eggs were laid beneath the lining of the small pool and, due to the pressure from subsequent rain, they were all deformed. Because the resulting five young all had spinal deformities they had to be humanely destroyed. The male had been kept in an outside enclosure for some years and one day when I went to feed him I saw him dart from a nearby compost heap back into his enclosure. The snake had escaped but I have still not discovered how. I was able

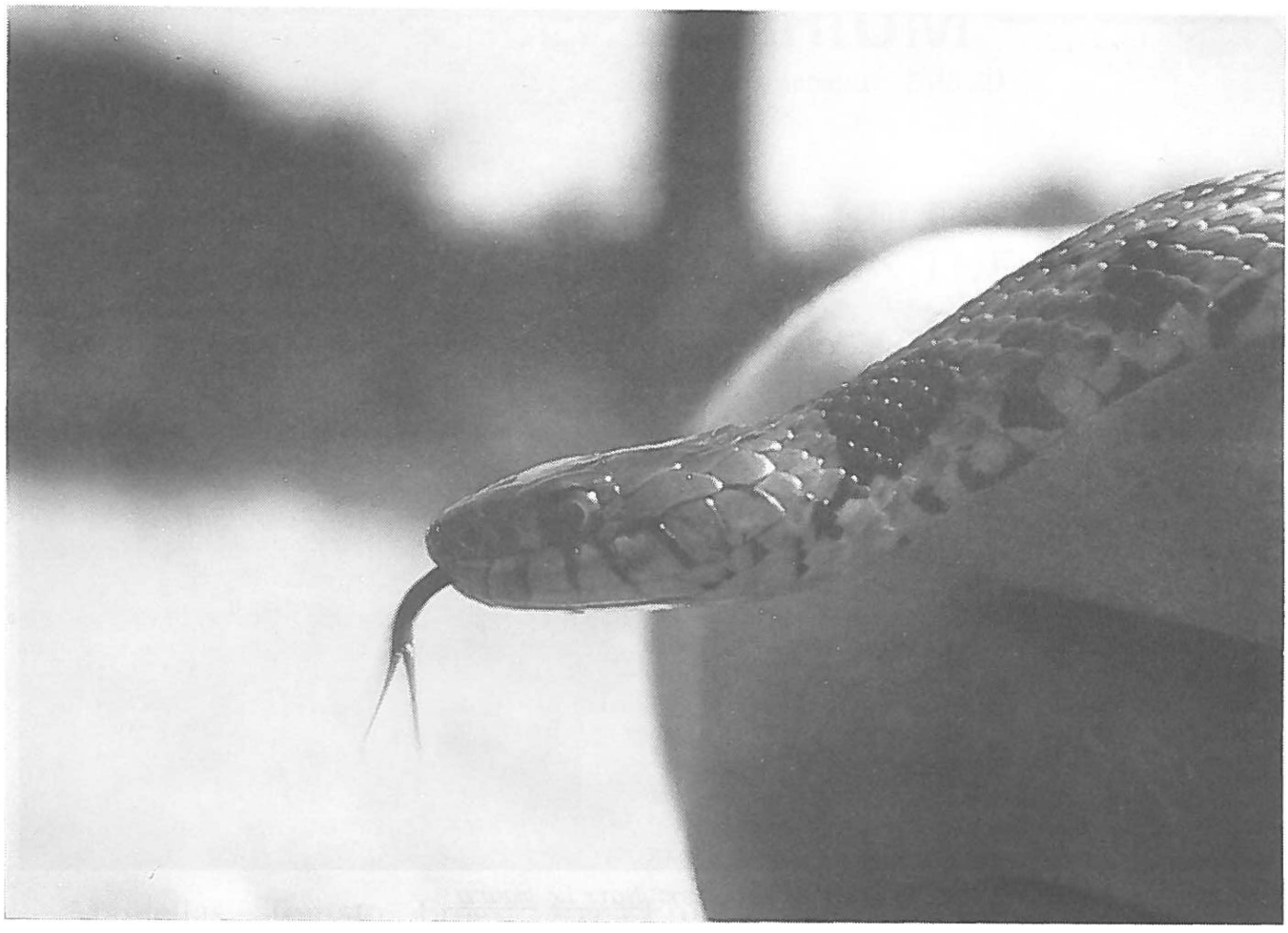


Above A young Grass Snake, Natrix natrix, from Italy

Below A Grass Snake from Isar/Munchen

Photographs by Werner Munsch



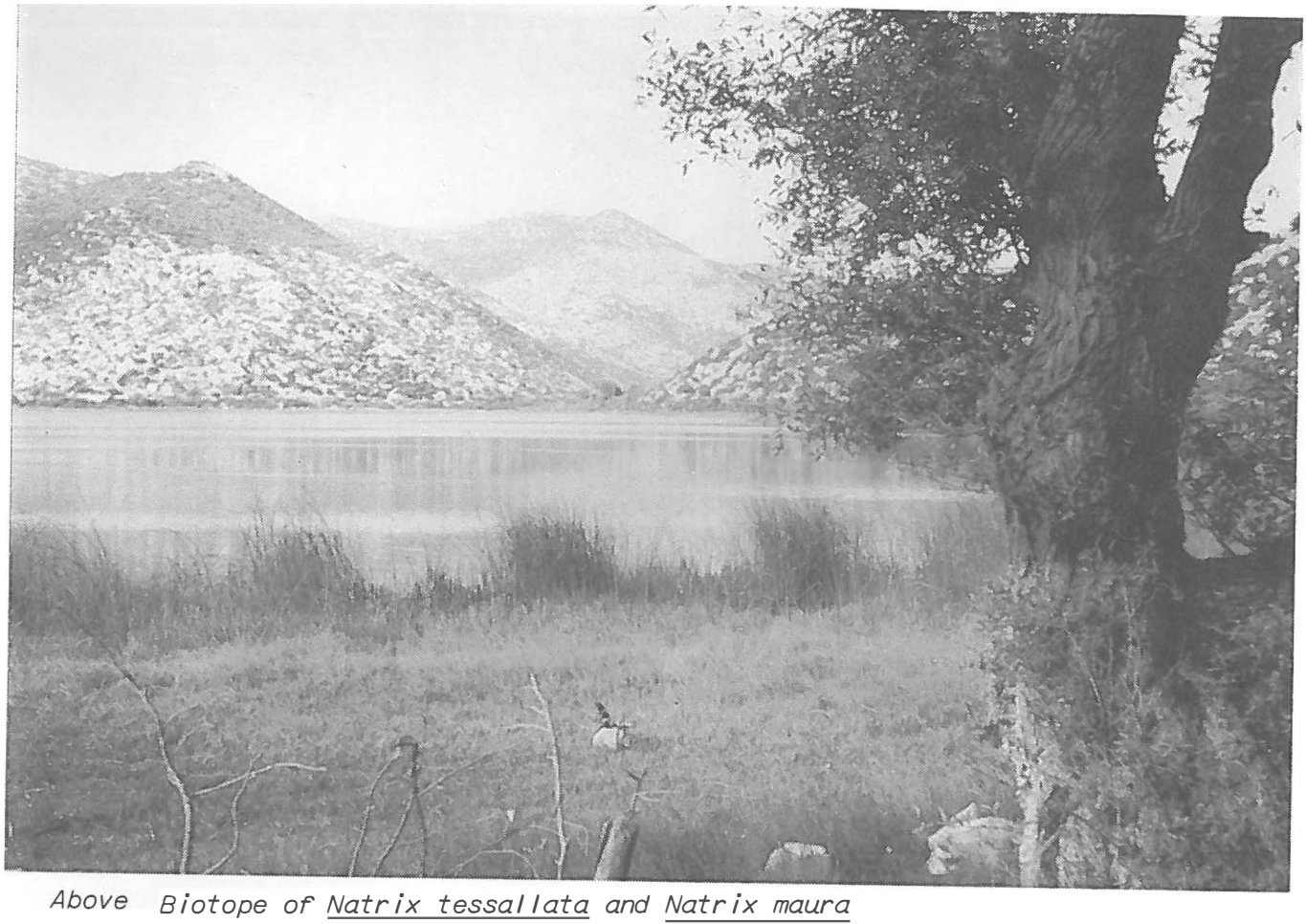


Above *Natrix natrix*, *a beautifully coloured variant from the Camargue*
Photo: Werner Munsch

to watch this game frequently and each time the snake returned to its enclosure. Later I introduced the male to the 'Black Lady from Yugoslavia'. I soon stopped feeding the snakes on live frogs; the Black Lady had caught one in mid-jump and proceeded to swallow it hind-legs-first. The staring eyes and the pitiful croaking haunted me for quite some time and I began to feed the snakes by hand using small fish or fish pieces. It worked perfectly. I had a rather special experience when I wanted to film Grass Snakes at Lake Neusiedel. Because they normally fled into the water, my son caught them and placed them back on land. Then what I had often read about finally happened - one of them played dead. It coiled itself into a loose pile showing parts of both its dorsal and ventral surfaces. The head was left hanging to one side with the tongue lolling out. In this position one could easily imagine it had been run over by a car and an uninformed person would certainly arrive at that conclusion. We walked away from the snake and waited a few minutes until the snake was 'resurrected' and had fled into the water.

The Dice Snake *Natrix tessellata*

This snake which, with its upwards-pointing eyes and nostrils, is superbly adapted for hunting in water I have found many times in Dalmatia, southern France and in the Swiss canton of Tessin (Ticino). Most, however, were found in Dalmatia, sometimes in such density that every few steps one fled into the water. Young and adult snakes were found. Naturally there was adequate food for them. In the main, fresh-water Blennies and Minnows are caught. The fish are sometimes caught very quickly from amongst water weeds and rocks and are eaten under water. If, however, the prey is very large it is brought onto land to be swallowed whereby at least the front half of the snake is on land. It appears to be much more tied to water than the Grass Snake and, when in danger, can remain submerged for quite some time. I was especially able to watch the aquatic gymnastics of these snakes whilst snorkelling to film Pond Turtles. Unfortunately, however, leeches made long observations impossible.



Above Biotope of Natrix tessallata and Natrix maura

Below The Dice Snake, Natrix tessallata, in Dalmatia

Photo: Werner Munsch



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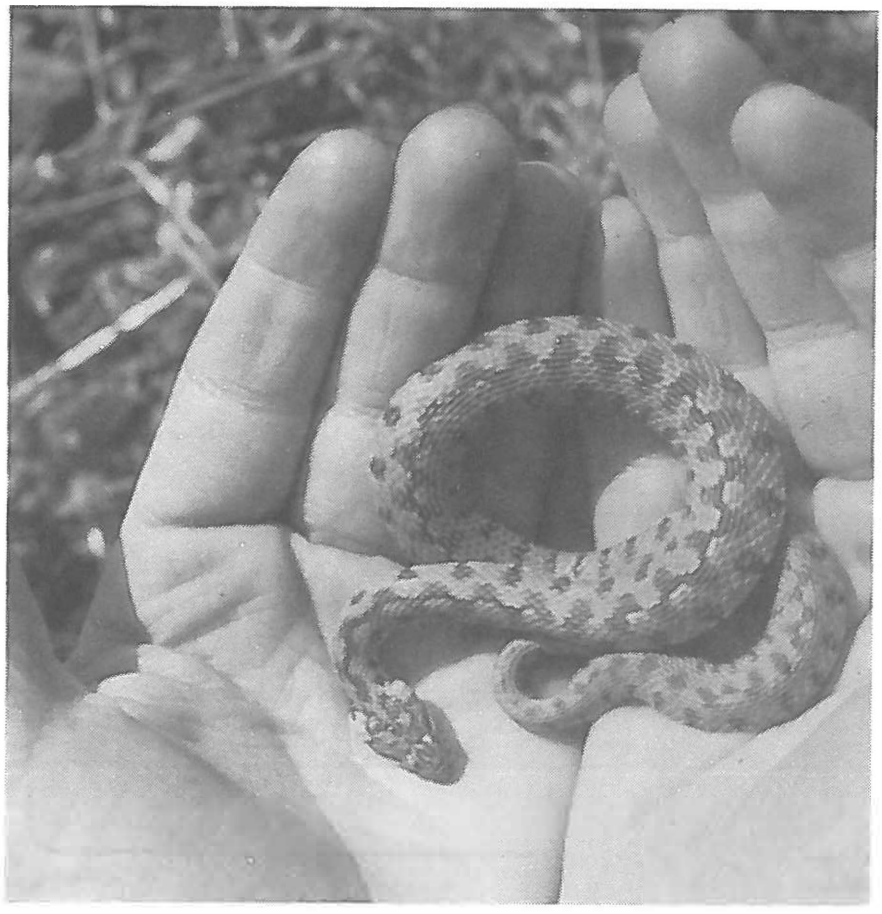
Proprietor: S. P. Norris



Above *Natrix tessallata* *waiting for prey*

Photographs by Werner Munsch

Below *The Viperine Snake,* *Natrix* *maura*



The Viperine Snake
(Natrix maura)

I have seen this snake in the Camargue and in Tessin and of those I have seen the more robust specimens come from Tessin. If only part of the body is seen it is easy to make a wrong identification, especially when it flattens its body and looks like a viper. They often occur in the same places as the Dice Snake and their lifestyle is very similar. In Tessin I saw both species of snake lying in the bushes basking. If they are disturbed or handled they hiss loudly but they never bite. They make bluff attacks with the head but the mouth is always kept closed.

Most of the experiences related above happened some time ago; many of these snakes are under threat to a greater or lesser

degree. Their protection is urgently necessary. If we can save the remaining marshes which have not yet been drained and the gravel pits which have not yet been filled with rubbish, we can all look forward to encounters with wild snakes in the future - even if only rarely.

*****

Author's address: Werner Munsch
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Werner Munsch is a member of the ISIS Herpetology Group based in Munchen.

This previously unpublished article was kindly made available to us by the Editor of 'Das Aquarium' and has been translated into English by John Hackworth.

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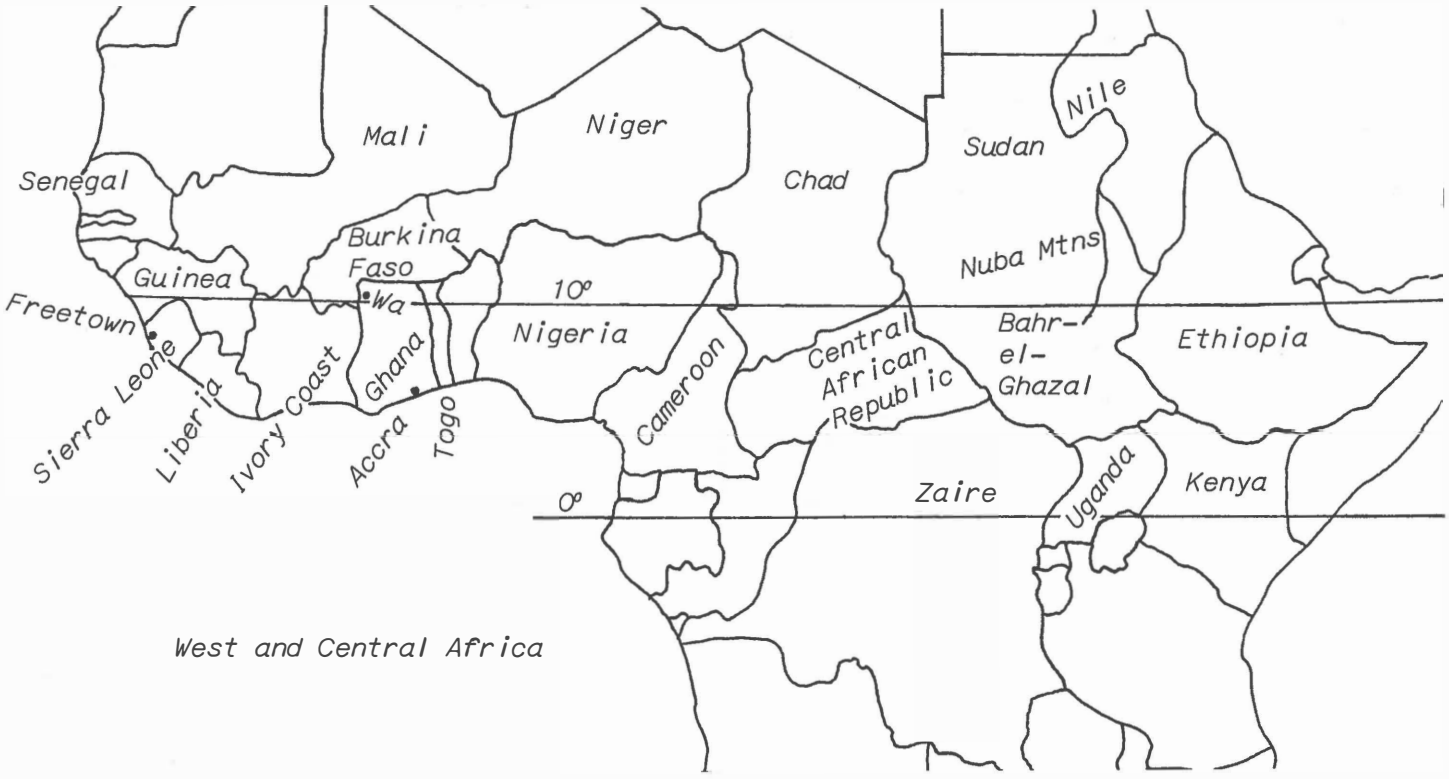
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Some Notes and Reminiscences on the Royal Python, *Python regius* in Ghana and elsewhere

by Stephen Spawls

Between August 1979 and September 1981 I lived in a town called Wa, in north-west Ghana. Whilst I was there I kept several Royal Pythons and saw a number of others. I had never kept Royal Pythons before I went to Ghana although while I was living in Kenya I had a number of Rock Pythons, Python sebae. Incidentally, there is a third African python belonging to the same genus, Anchieta's Dwarf Python, Python anchietae. This species is found in Namibia and southern Angola. It is a beautiful small python with most attractive markings and its head is of a similar shape to that of the Royal Python. I have never kept one and it is strictly protected in Namibia.

The Royal Python is described as a savanna dwelling snake. Welch (1982) gives its range as "Senegal east to Uganda". The Uganda records are recent; Loveridge's (1957) checklist of the reptiles and amphibians of East Africa does not include Python regius. The Royal Python is also found in the south-east Sudan, in the Bahr-el-Ghazal and Nuba Mountains. One would imagine that its range is continuous and well-documented. It is a conspicuous snake and the Sudan/Guinea savanna habitat that it favours occurs in a broad belt across Africa, roughly between 5 and 10 degrees North, from Senegal to the Nile. However, its range is neither well-known or understood. Pitman (1974) says "West Africa, from Senegal to Sierra Leone to Ivory Coast and in parts of Central Africa". Villiers (1975) gives its range as "throughout the Sudan (savanna) region, from Senegal to Sudan" (my translation). Roman (1969) has records of pythons from extreme northern Burkina Faso (formerly Upper Volta), almost in the Sahel, but neglects to say which species he refers to. Nobody seems to know how far north Royal Pythons occur in Africa. Papenfuss (1969) attempted to analyse the zoo-geography of the reptiles of arid central West Africa and states that the Royal Python was "widely distributed in tall grass savanna" but no more. The range he gives is identical to that described by Villiers. Papenfuss discovered no records of this species in Mali and Niger, so possibly it does not reach the dry country north of the 10 degree N latitude line. Only George Cansdale, in his handy book 'West African Snakes (1973, revised edition), has much to say on its distribution. He states "This python is a



West and Central Africa

snake of the open forest and grasslands of West and central Africa and it is found from Senegal in the west through to the Sudan and Uganda in the east, including all the West African countries. It cannot live in closed forest but it has colonised the grasslands around Freetown which have resulted from heavy clearing and farming."

I encountered Royal Pythons in three places in Ghana; in the grassfields in the south around Accra (the capital), at Navrongo in the Sudan savanna in north-east Ghana (very open country with short grass, Baobab trees and rocky hills) and around Wa, the town where I lived in north-west Ghana. Around Wa, the vegetation type, known as Guinea savanna, is partially wooded, with tall grass.

Royal Pythons were rare around Wa. In two years I found two (out of a total of more than 500 snakes) and was shown several others. One of those I found was dead on a road in August, which is about halfway through the rainy season. The other was alive in a chicken run in April at the beginning of the rainy season. In the grassfields around Accra, however, the situation is different. Royal Pythons are common there. My friend Barry Hughes, at that time the Herpetologist at the University of Ghana, told me that he had several Royal Pythons brought in every month. In the short time that I was working at his office (a month), four Royal Pythons were brought to me. In the extreme north-east of Ghana, around Navrongo, I saw one Royal Python dead on the road and chatted with an old man who hunted small animals to eat. When I met him he had two dead Royal Pythons in his bag and he described them as "common" and "living in holes on rocky hills". But he was a skilled hunter and probably quite expert at finding them. When I returned to Wa after meeting the hunter I began searching holes on rocky hills but without success. At a town north of Wa, however, I met a Catholic priest who was keeping a Royal Python that he had found on a little hill near his home. I went to this hill and began poking my snake stick into holes. Eventually I found a hole which had something soft inside that hissed when I poked it. In great excitement I got a torch and peered in but the occupant turned out to be a hedgehog.

One of my students at Wa also told me about a certain village called Nanvilli where, he said, Royal Pythons were kept as totem (i.e. sacred) snakes. This is unusual in West Africa where, for the most part, snakes are greatly feared and killed on sight. I travelled to the village but when I began to enquire about the snakes I was directed to another village (called Nadoli). When I got there I was directed back to Nanvilli. I concluded that it was a case of the well-known 'everywhere but here' syndrome.

I kept three Royal Pythons in Ghana for some time. The best was the young female that was found in a chicken run. I had her

for one and a half years and when I left I gave her to an expatriate friend who kept her for a further three years and then released her. She was a beautiful snake with very attractive markings. The Royal Pythons of the northern Ghanaian savanna are nicely coloured, being yellow-orange between the black rather than brown or brick-red (but not the awful yellow of the xanthic male Royal Python illustrated in Pitman (1974)).

When this snake came to me she weighed 650g and was 85cm long. She was an excellent feeder eating from the first day, any sort of rodents, from Pygmy Mice (Mus minutoides) to large rodents such as the Multimammate Rat (Praomys natalensis) and Kemps Gerbils (Tatera kempi). The only other food I offered her was birds, but she never showed any interest in them, alive or dead (so what was she doing in a chicken run in the first place?). She was a very gentle, good-natured snake, she never bit and, after the first few days she stopped rolling into a ball when she was held.

The other two Royal Pythons that I kept I bought from hunters in the Accra area. At that time I was working in Barry Hughes' office and snakes were regularly brought to him. He didn't want the snakes but advised me to buy them otherwise the hunters would eat them. Both snakes were females. One was quite large at 1.45m long and weighing just over 3kg. This snake was very vicious and I only kept her for a short while before I released her. At the time she was the largest Royal Python I had ever seen. Cansdale (1973) states that specimens from the Krobo Hills (near Accra) reach 6' (1.85m) and Villiers (1975) mentions an unsubstantiated report of a specimen measuring 2.5m. Initially sceptical, I later saw a huge Royal Python at the Kumasi Zoo. This snake had lost all of its tail but it was nearly as thick as my thigh and at least 1.6m long. The snake refused to uncoil when held but I held its head and tried to pull it straight; it remained kinked but yet nearly equal to my armspan. The Curator told me that it had been at the zoo for eight years and could eat whole Cane Rats (these are large rodents about twice the size of a big Guinea-pig).

The third female I kept was 1.2m long and weighed 1.42kg at capture. Although she did not bite she coiled into an amazingly tight ball when first held, so tight that she could be rolled across a smooth floor. Once when I was holding her when she was partially tamed, someone approached; she attempted to ball up around my arm and her strength was astonishing. I kept this snake for a year. During this time she never fed but drank regularly and her weight decreased from 1.4 to 1.2kg. When I left, I gave her to the son of a friend and about a month later she began feeding.

It seems that big Royal Pythons can be finicky feeders. Cansdale mentions two that fasted for 22 months. Charles Sweeney, who is probably the only man to have watched a wild Royal Python hunting (described in his book 'Jebels by Moonlight' (1969) which is about his adventures with animals in the Sudan) tells of the snake hunting in a tree, patiently sticking its head into every hole that it could find. The snake spent about half an hour investigating all the holes in the tree but without success. This was in the Nuba Mountains in the Sudan. (Sweeney, incidentally, has also written two other books of popular natural history in the style of Gerald Durrel, and an as yet unsurpassed work on the snakes of Nyasaland, now Malawi).

My Royal Pythons from Accra were dug out of rodent burrows and it seems that the Royal Python is a hole hunter, finding its mammalian prey by crawling into holes and catching rodents. Gerbils are often suggested as good offerings for finicky Royal Pythons and certainly in the West African savanna, there are several species of gerbil which are fairly common and they are burrow-dwelling species. One technique that occurs to me to start a Royal Python feeding might be to provide them with artificial tunnels in which to stalk their prey. I have seen this method work with other hole-hunting, rodent-eating species, notably the huge and beautiful African Hook-nosed Snakes (Scaphiophis albo-punctatus), and Brown House Snakes, but I have never tried it with Royal Pythons.

Royal Pythons in West Africa are mostly nocturnal, although Cansdale says that they sometimes emerge to sunbathe during the day. Mine normally emerged after dusk (although the small female would come out at any time if she smelled a rat and she could smell it a long distance away!). Night time temperatures in Ghana are warm, averaging 30 to 32 degrees C in the early hours of the night, falling to 24 to 25 degrees C around dawn between April and

October. Around the end of the year and January and February the temperature falls quickly from 34 or 35 degrees C before sundown to 28 or 29 degrees C by half an hour after dusk and near dawn it drops to 20 degrees C or even lower. Although I came across too few Royal Pythons to note any seasonal trends, nocturnal reptile activity in West Africa is low between December and February, when it is dry and cold at night, and at a peak in April, May and June, when the rainy season is beginning. West African snakes don't hibernate in the true sense of the word but they remain rather dormant in their holes between December and February.

When digging out holes for other snakes and geckos around Wa, we found that in holes which go down 60cm or more, the humidity is very high and the temperature stays steady between 27 and 33 degrees C throughout the year, no matter what the time or season. So Royal Pythons living in holes can use them both as a heat source, to warm up a bit before going out for a hunt, or as a buffer to protect them from high outside temperatures.

Most of the Royal Pythons reaching Britain come from Ghana, Togo or Nigeria where the climatic conditions I have described will apply. The day length in northern Ghana varies slightly, sunset times vary from 5.30pm (December) to 6.30pm (June).

Perhaps the final comment on Royal Pythons should come from the Catholic priest who kept one and showed me the hill where I found the hedgehog. "Before I got this python," he told me, "I hated snakes but, when I saw this one, I was determined to keep it. I like it very much. It is beautiful and very kind."

*****

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Editor's note. The author of this article, Steve Spawls, is happy to correspond with anyone interested in African herpetology. His address is:

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Private Bag 11
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Botswana

Book Review

Keeping and Breeding Snakes by Chris Mattison

Published by Blandford Press, London
ISBN 0-7137-1865-X Price £16.95

Anyone wishing to buy a good book on snakes should look no further than this one. The book covers most of the snakes likely to be kept, plus a section on venomous species. The information is very good covering vivariums, how to keep the snake's enviromment up to scratch, lighting, heating, health and management. Chapter 6 describes breeding, sex determination and raising young snakes. Chapters 7 to 11 cover keeping the snakes and include many species, from boas and pythons to kingsnakes, ratsnakes, bull, gopher and pine snakes plus other miscellaneous colubrid snakes. Sources of captive bred snakes as well as herpetological societies are given. There are many photographs in the book. The author has kept many snakes and lizards during the last 20 years and will be known to readers of Snake Keeper for his article 'Raising baby Colubrid snakes', Snake Keeper Volume 2, Number 7.

Reviewer: Kelvin Waltho

Various Problems with Garter Snakes

by Cassandra Oakes

I started keeping garter snakes in 1986, foolishly believing the small amount of literature available that said they were hardy, active and never refused fish! In my experience they can, and do, contradict this.

To date I have kept seven garter snakes; six Red-sided Garter Snakes (Thamnophis sirtalis parietalis) and one Eastern Garter Snake (Thamnophis sirtalis sirtalis) plus 26 baby snakes! Various problems and illnesses have cropped up and I hope that documenting these will prove useful to other keepers of these charming creatures.

The four garter snakes I own at present are adult Red-sided Garter Snakes; two males (A & B) and two females (C & D). All were bought from pet shops in late '86, early '87 in various states of health. They are housed together in a glass aquarium which has had the rear glass pane replaced with a painted wooden panel. Mesh ventilation panels have been added to the aquarium ends and a heavy wooden lid (with a ventilation panel) completes their home. The cage is heated at one end by a 60 watt or 100 watt reflector bulb by day to 26 degrees C. At night a 60 watt blue incandescent bulb maintains a temperature of 21 to 23 degrees C. Night heat has proved unecessary in the summer because other snake cages keep the room warm. I have allowed the cage temperature to fluctuate with the room temperature to a large extent to provide natural seasonal and day/night warming and cooling and the snakes thermoregulate, eat and fast to correspond with this variation. I have only intervened with a higher or lower wattage bulb when the weather has been extreme: on a very hot summer's day I turn the light off or during a sudden frosty spell I increase the wattage of the bulb.

All the garter snakes are fed every other day on (as available) pink mice with worm slime, dead goldfish (regularly donated by a local pet shop), minnows, salmon, cod, sprats, plaice, mackerel, whitebait, tadpoles and earthworms, with a vitamin supplement. Tadpoles are very useful for getting new-born garter snakes to feed. All sea fish is heated at 26 degrees C for 5 to 10 minutes to destroy the thiaminase (see my article in Snake Keeper Volume 2, Number 2, page 13) and a vitamin supplement is added.

The male adult snakes (purchased in November 1986) started fasting in January 1987 although I had planned to keep them active and feeding to check their health. Snake B recommenced feeding on the 6th April and both snakes then sloughed once a week for three weeks, each period of sloughing lasting about three days. Although snake B fed after each slough snake A didn't start feeding until the 4th of June.

At the beginning of March, A had caught a cold, started wheezing and a clicking noise was heard coming from its throat. On the 7th March our veterinary surgeon diagnosed an inflamed membrane around the bones in the throat and jaw. The three-day treatment consisted of the insertion into the snake's throat of a catheter with a syringe attached containing 1ml of Oxytet solution (2.5ml of Oxytet to .5 litre lukewarm water). On the 30th March, snake A was taken back to the vet as the snake's vertebrae 'crunched' when it was handled. The treatment was as before, with the addition of multivitamins, and total seclusion at a temperature of 30 degrees C. This temperature was achieved by the addition of a blue 15 watt bulb to the 100 watt reflector. On May the 19th and 21st, A was assist-fed with the heads of pink mice and put on a seven day course of vitamin B12 (Stimulap/Cytacon) to improve his appetite. At the end of this period he went cloudy and, after the slough on the 4th June, he immediately ate four small whitebait and a few tadpoles.

The fasts of snakes A and B seemed to be a form of semi-hibernation and they lost a minimal amount of weight. Their body clocks had told them to cease feeding in accordance with the season and the urge to hibernate.

I bought snake C, a rather large female on the 3rd of March 1987. She had a small amount of scale rot on her neck. Her neck was swollen, three scales were resting on lumps of pus and several ventral scales had brown patches on them. The snake was immediately given a penicillin injection.

The swelling had gone three days later and, by the 7th of March, the pus had either dried up or cleared. When the snake sloughed on the 21st all damage had gone. C had a health check and was allowed to go in with the male snakes. B immediately attempted to mate with her (duration 12 hours) and tried again on the 29th June and the 13th and 15th of August.

On the 18th September I bought snake D. This snake had extensive scarring on various parts of her body. She was introduced to the cage and snake A instantly wanted to mate with her.

I started cooling the snakes down prior to hibernation on the 27th October 1987. I wanted their emergence from hibernation to coincide with our impending house move. Once again the snake's appetite had started to decrease and they were healthy so this seemed the right time to start.

I was aiming for a temperature decrease of about 6 degrees C a week over a four week period, finally hibernating them at 4 degrees C. During the second week, at 21 degrees C, the snakes ceased feeding so they were allowed to clear their stomachs before the process was completed. In the second week I took out all cage decorations and put in 10cm of dry sphagnum moss (in which they love to burrow) and their water bowl.

Light bulbs for cage heating have drawbacks in that it is hard to control the heat at hibernation time. The initial temperature change was achieved by lowering the wattage of the light bulb and leaving the cage unheated at night. The next change came through moving the cage to an unheated spare room. Finally the cage was moved to an unheated conservatory where the temperature fluctuated between 4 and 10 degrees C depending on the weather. The garter snakes were active at various times during the day but they moved very slowly.

The hibernation proper lasted from the 27th November to the 21st January 1988 when I started to warm them up slowly. At 15 degrees C they paired off and I saw B and C mate. Although they had been brought out of hibernation at the wrong time, I assume that as the temperature was that of Spring they automatically started to mate.

All the snakes commenced feeding when the temperature reached 22 degrees C and snake A took a lot of interest in snake D although I didn't see any proper mating. Snake B was too distracted by the females to eat heartily until the 8th February. The snakes sloughed between the 21st and 25th of February.

By this time a half-grown Red-sided Garter Snake had arrived at our house. It fed heartily until its death two weeks after being purchased. It appeared to have died through being trapped under a piece of cork bark. Garter snakes are very active creatures but not strong enough to get out of situations like this so do make sure that cage decorations are unmovable and can't rock over. There were no signs of the body being crushed but, as the snake seemed perfectly healthy two hours earlier, this is the only conclusion I can draw.

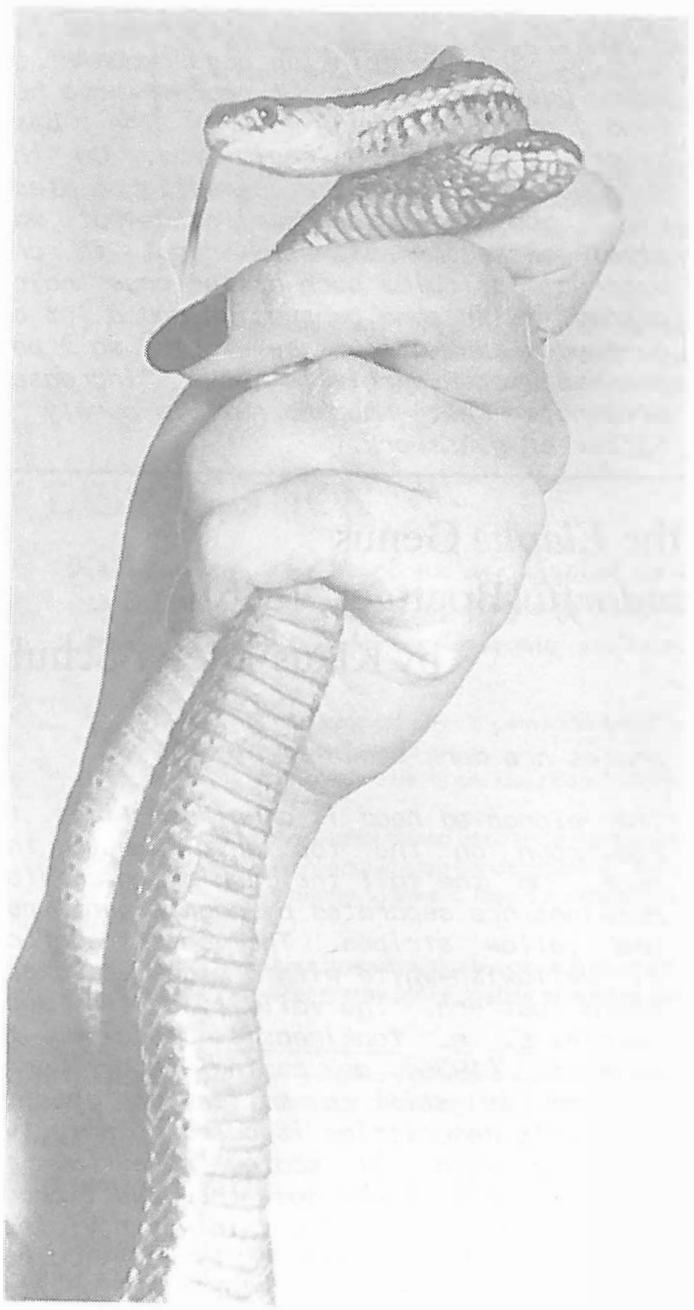
To replace the dead snake I bought an identical animal from the same shop. When put into its cage it rolled over and couldn't move very quickly. A close examination revealed a 5cm long indentation in its body roughly where the intestines are. It was given earthworms with vitamins which filled the indentation out a bit. During the night the snake repeatedly looked as if it was dead and wouldn't move when touched. Picking it up brought it back to life. Enquiries have led me to believe that the snake was probably undernourished. It was returned to the pet shop the next day and I was allowed to exchange it for a more expensive black garter snake (later identified as an Eastern Garter Snake).

The newly-acquired snake, a female, was said to be feeding well on sea fish. It was quite dirty so I washed it when I got home and this made it look a lot better. It refused food during the next day but seemed to settle in. I re-checked on what it had been eating and tried again the next day but without any success. The snake became less active during the following day and didn't seem quite 'right' so I took it to the vet. We discovered a small patch of necrotic stomatitis (mouth rot/canker) which appeared to have been caused by stress. The snake was treated with Tetracycline and given multivitamins. The next day the animal suffered a series of violent epileptic fits and kept keeling over. I got permission from my vet to take it to another vet (an expert on reptiles) who lived 15 miles away. The snake continued

to have fits and continued keeling over. Every time we righted it, it went over again. Thankfully it died at lunchtime and was put into an airtight box in the fridge on the coldest setting. It was taken to the other vet for a post-mortem. Death seemed to be consistent with Avitaminosis B (lack of B vitamins). Apparently there was little body fat and no internal parasites.

Snake A was also taken to the vet as he had caught and scraped his tail whilst sloughing, managing to rip the tiny underside scales. This area had to be painted with Pevidine (iodine) twice daily.

The house move brought about a change of soil from which we obtain worms. Our previous garden was a small, long established suburban garden, fertilised organically. We now live in an opencast mine area with a clay soil. The previous owners had been emptying ash from their coal fire onto the garden. I discovered that worms from our front garden were regurgitated by the snakes after a few hours but worms from a garden ten doors away (no coal fire) were not.



The final illness or problem that has arisen has probably been the biggest. Snake D was taken to the vet on the 17th April because what started as a dirty brown stain on the dorsal side of her neck erupted into a huge, gaping, rotten sore virtually overnight. It got so bad that forceps could be put into the hole. At that point none of the other snakes were infected. Neither the vet nor I could work out where the infection had come from since the cage is cleaned daily with 'Formula H' (supplied and used by vets). This preparation is non-toxic, unlike pine disinfectants. The garter snakes only have a small waterbowl which is not near the light/heat source so there is little dampness.

I had to inject the snake daily with one 3ml dose of Tylan 50 and swab the wound with Pevidine for five days. The temperature had to be maintained at a constant 30 degrees C. The Pevidine was eventually changed to Dermisol, a far more powerful substance which aids the removal of necrotic tissue as the antibacterial action allows the regrowth of healthy flesh. The snake eventually sloughed and no traces of the damage could be seen.

The skin condition emerged next in snake A whose skin got a lot worse than snake D's. This time there weren't any holes in the skin but it dried up and the outer layer could be partially peeled off. The skin got so dry that it pulled the skin under the jaw so tight that the snake couldn't shut its mouth and was salivating. The snake ceased feeding and eventually the underside of its body became indented. This conditon now became noticeable in snakes B and C. All three snakes were treated using a catheter and syringe to the throat with 3 to 4 drops of Ceporex and Abidec (vitamins) and were also given a de-worming treatment. Snake A was also

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Left: Photograph shows snake D (left) with normal pale chin and snake C (right) with a dark brown chin and ventrals.

treated with Cytacon. B and C were also treated to try and "nip the condition in the bud" but this didn't work. They are now in the same state as the others were! Snake A sloughed the condition off and resumed feeding with a vengeance. He did however manage to break the last 2.5cm of his tail off whilst sloughing, the bit that was damaged earlier. Snake B developed an abcess in his vent which meant a stay with the vet and injections of Scorprin. His aftercare consisted of swabbing with Pevidine.

I am now waiting for B and C to go cloudy and slough as this appears to be the final part of the cure. I have managed to make the two sick snakes more comfortable by giving them damp sphagnum moss to burrow in and a very large water dish plus treatment with Dermisol. The increased humidity makes the skin more pliable, allowing their mouths to close. The added comfort makes them more likely to feed.

All the cage decorations are replaced regularly to keep conditions as clean as possible. It seems that the skin problem has to run its course and cause as much damage as it is going to before vanishing when the snakes slough their skin; any medical intervention seems fruitless. We are still no wiser as to how the condition has arisen. Dirt, dampness and lack of ventilation have been ruled out so if anyone has any ideas my vet and I would be happy to hear them.

Update

Snakes B and C went to a local vet on 22nd November 1988 because of their skin, they were both feeding and active. They were injected with 1ml of Tylan 50 and were to have another three injections. After the injection and especially during the next day B became very stiff and lifeless. His mouth was open wide permanently and he had no co-ordination. He was put to sleep on the 24th of November. The vet suggested that the snake had either had an allergic reaction to the Tylan 50, or the infection had spread internally, or that the snake had been overdosed. Snake C is now recovering very slowly from the injections and now seems to have a 50/50 chance of survival as she also reacted as B did. She is drinking huge amounts of water but needs to be put near or have her head put in the water. The best description would be brain-dead. On the 28th November the snake seemed to be less rigid and would sleep coiled up but was still extremely slow to react to any external stimulus such as the cage being opened. With some persuasion and a lot of guidance she ate three worms so her chances of survival have increased somewhat. What happens next is purely a matter of guesswork.

Asian Rat Snakes of the *Elaphe* Genus
Part XIII *Elaphe moellendorffi* (Boettger, 1886)

by Klaus-Dieter Schulz

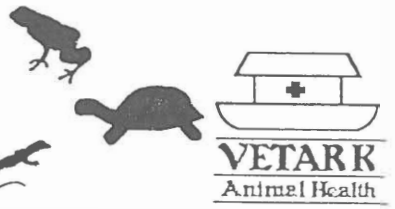
Because of its beautiful colouration the Hundred-flower Snake awakens the desire of many herpetologists to keep this species in their vivaria. Unfortunately, Elaphe moellendorffi only reaches the pet trade in a very weakened state and with numerous illnesses. The most common cause of death in the animals which were examined was an extreme loss of electrolytes, which is caused by keeping them under too dry conditions and depriving them of drinking water.

Description

The fairly slim body is a grey to olive-green colour. Along the back there are 25 to 30 elongated brown markings which are bordered in black. The sides of the body are also covered with brown spots. Some scales are dark brown or black.

The elongated head is a uniform light to red-brown on the top and down to the neck. On the tail the dark brown saddle-markings are separated by magnificent red and yellow stripes. The ventral surface is yellowish-white with a black checker-board pattern. The validity of the sub-species E. m. tonkinensis described by Bourret (1936) as coming from North Vietnam is still a matter of debate. Bourret's description is based on only two examples with 31 scale rows (E. m. moellendorffi = 27) and the exact place where these were found in North Vietnam is not known (Smith, 1942). Colour mutations and albinos (Shiu, 1987 written report) are known but are quite rare.

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Distribution range of Elaphe moellendorffi by K-D Schulz

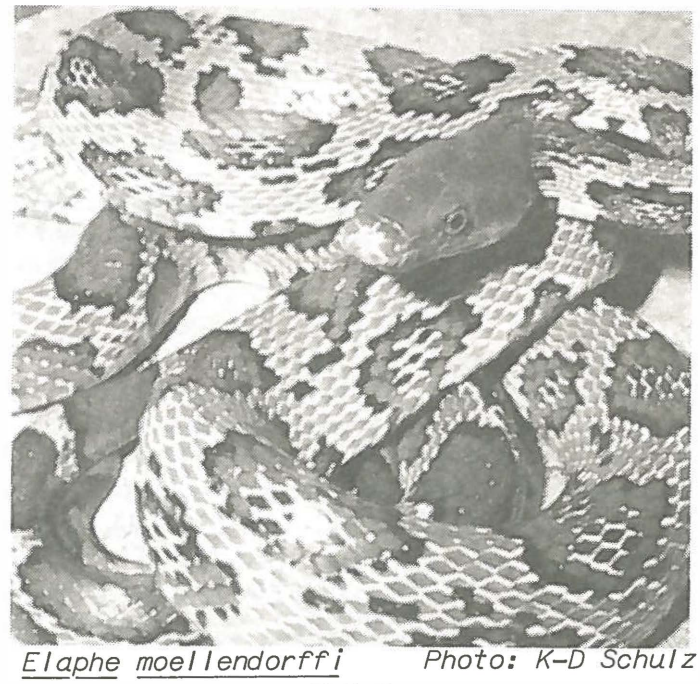
Elaphe moellendorffi can reach a total length of 250cm or more.

Distribution

Elaphe moellendorffi occurs in the Chinese provinces of Guangdong and Guanxi and in North Vietnam. According to Mell (1929) this snake lives at altitudes between 50 and 300 metres and, east of Guanchon (Canton), is not supposed to be rare. Oscar Shiu (Hong Kong) informed me that these snakes frequently live in the vicinity of water and, in some places, occur in great numbers. In Hong Kong itself thousands of these snakes are offered for human consumption.

Maintenance in the vivarium

Even though this magnificent snake has been imported for many years, reports on its husbandry are quite rare. The reason for this lies probably with the high mortality rate of imported animals. Healthy and newly-caught animals however do not appear to bring any problems with them. This was proved in 1969 by San Diego Zoo (USA). There they not only managed to keep E. moellendorffi successfully but also managed to breed this species. At San Diego they gained the experience that at lower temperatures (18 to 21 degrees C) the snakes more readily accepted the food which was offered to them than they did at temperatures of 24 to 28 degrees C. A mating was observed at the end of May but this did not result in any eggs. It was only at the beginning of September the following year that six elliptical eggs were laid. These were hatched in a simple incubator. At a temperature of 27 degrees C after 80 to 83 days five young emerged. These were 44cm long and weighed 19g. The colouring of the young was very similar to that of their parents. Van Riel and Claessen (1983) also reported better maintenance results at temperatures of 17 to 22 degrees C with the main period of activity being in the morning between 7 and 9am (17 degrees C). In view of southern distribution (sub-tropical climate) in relatively low-lying regions I am personally not of the opinion that this snake prefers a temperature below 20 degrees C. This view can be proven by me and other herpetologists because this species has now been kept in vivaria for quite some time without any problems. The temperatures at which they have been maintained lies between 20 and 28 degrees C and some animals occasionally lie on part of the substrate which is heated (Frohn, verbal report). The main activity periods are however in the morning and evening, but this is also the case with many snakes. Their food is laboratory mice which are sometimes taken greedily. It does however appear to be important to keep them under conditions which are slightly moist. If the humidity is insufficient and the substrate constantly dry, sloughing problems can arise. It is therefore recommended that the vivarium be sprayed daily and that a large water bowl be provided.



Elaphe moellendorffi Photo: K-D Schulz

In behaviour Elaphe moellendorffi is

relatively even-tempered but, if annoyed they can inflict a severe bite. In some individual cases it has been observed that when approached they vibrate the end of their tail.

To date no guidelines on the maintenance of Elaphe moellendorffi can be given since no-one has had any experience with this species for sufficient length of time.

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Asian Rat Snakes of the Elaphe Genus, Part XIV, Elaphe subradiata and Elaphe erythrura will appear in next month's issue.

This series of articles, 'Die hinter-asiatischen Kletternattern der Gattung Elaphe', was originally published in the magazine 'Sauria' beginning in 1985. Part XIII, featuring Elaphe moellendorffi, appeared in 'Sauria' 2, June 1988. This English translation by John Hackworth has been printed by kind permission of the author.

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LETTERS

Snake Keeper
159 Stanley Hill
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Dear Sir,

In a recent Snake Keeper (Volume Three, Number One) an article on the subject of vivarium heating was published to which I would like to add the following comments.

The authors correctly discourage the use of light bulbs and tubular heaters but go on to recommend infra-red dull emitters in favour of underfloor heating systems. I feel that, under certain circumstances, this could mislead beginners and that the reasons given for their choice are open to question.

Firstly, they appear to favour a system which heats a large area of the vivarium, stating that 'this is natural for the snake and controlling the temperature is made far easier'. In fact, this is not at all natural for the snakes, which have evolved a system of thermoregulation which depends on the ability to move from warm to cool situations as required. If the heat is beamed out over a wide area, as recommended, and the 'chosen' temperature (chosen by the keeper, not the snake) is unsuitable, the snake will be placed under stress with serious results. Now, obviously, snakes can be kept in this way and many people do so successfully, but this doesn't mean it is the best way. If the snake is given a choice of temperatures within the cage it can arrange to be in the right place at the right time all the time. This will vary according to whether it has just eaten, is about to shed its skin, whether it is night or day etc. It is fairly safe to assume that snakes know better than humans how warm they need to be, so give them a choice and they will thrive.

As to the means of providing a choice, underfloor heating is ideally suited to this principle. The heat can be provided by a tape or cable positioned under one

end of the cage or box and left on permanently (except when the animals are cooled off in the winter). This creates what is known as a thermal gradient and the snake will sit over the cable if it needs to get warm, placing its body in contact with the warmest part of the cage. There is no need to incorporate a thermostat, except where there is a danger of overheating - in this case the thermostat can be placed anywhere in the snake room, and set to trip at, say, 75 degrees F. There is no need to heat the air in the vivarium, except in the case of the few highly arboreal species which are occasionally kept. This is also natural - the vast majority of snakes which are likely to end up in vivaria do not bask in the wild - ever. They are mostly active during the evening, early morning or are strictly nocturnal. They warm themselves by conduction (from the rock, sand or whatever they are crawling over or sitting on), not by radiant heat. This rule applies to kingsnakes, ratsnakes, boas, pythons and most of the commonly kept snakes, with the possible exception of some of the garter snakes from northern climates which may bask during Spring and Autumn.

Obviously, it is of the utmost importance to ensure that underfloor heating is not set up in such a way as to create a fire hazard, and equipment must be used in accordance with the maker's instructions. If in doubt, the pad or cable can be covered with a strip of thin aluminium, which will conduct and dissipate the heat safely.

I realise that many snake-keepers who like to maintain large boas and pythons may have cages large enough to use infra-red emitters at one end and still have a relatively cool area in the cage. In this case, there is nothing wrong with the system, provided there is no danger of the snake coming into contact with the heater and burning itself.

For small to medium-sized snakes, however, a system using heating pads or cables, as described in a previous article and in my book, is cheap to install, cheap to run and, most importantly, it works real well. The system has been arrived at after twenty years of keeping snakes under a variety of conditions with varying results. The availability of cheap electronic equipment in recent years has done a great deal to simplify snake-keeping and should be taken advantage of. If you're still not convinced, give me a call on Sheffield 364433, and arrange to come and have a look at my animals, maintained as described for the last several years, all feeding and breeding well, with the minimum of expense and time!

Yours sincerely,

Chris Mattison
Sheffield

*****

Dear Michael,

We feel we must make our feelings known with regard to the domestic light bulb versus the ceramic heater.

We read with great interest and, we must add, surprise that Kevin Hingley views the light bulb with esteem. Although we would not describe this method as barbaric we certainly believe this is inferior to a system incorporating dull heat emitters in conjunction with an independent light source (preferably True-light).

Firstly, we would like to stress that there is no excuse for reptiles being injured by burns from dull heat emitters or, for that matter, the common light bulb. They should be adequately screened to prevent the occupants from burn injuries. (This can be done easily by using a strong wire mesh.)

Secondly, when used in large vivaria, the light bulb is unable to provide adequate and satisfactory temperatures, whereas ceramic heaters can be purchased in comparison to the size of the vivaria. Providing a good quality thermostat is used and positioned in the correct place, the system should be both safe and economical.

A photoperiod is not absolutely necessary for some of the more common varieties but not only is it beneficial to the reptiles it is also cheaper. A lower temperature costs less to maintain and in order to keep most species in optimum condition a drop in temperature at night is required.

Mr Hingley and others have enjoyed success in keeping and breeding reptiles despite using these inferior methods but we hasten to add that if he is waiting for his snakes to "turn cartwheels or sit

gibbering in the corner" in order to gain better equipment, he will wait forever. Snakes in captivity cannot choose their surroundings or their owners and the responsibility for them has to lie with the owner. Surely then it is our responsibility constantly to maintain high standards and to search for new improved methods instead of always sticking to the cheaper alternatives and sneering at the people who are aiming for something better.

Basically we believe that choosing a light bulb instead of a dull heat emitter is like choosing to eat beefburgers when prime steak is on offer. Need we say more?

Yours sincerely, Andy & Bev Cutts
South Yorkshire

*****

Dear Snake Keeper,

Re the recent articles on the Hog Island Boa, may I suggest that they be classified as Boa constrictor fantasia - Fantasy Island Boa! That way they could come from wherever you like.

Yours faithfully, Nigel Morris

*****

Dear Snake Keeper,

I have been a follower of your magazine since its birth. I have read with interest and delight the many varied and interesting articles written by both yourselves and other readers. I was however disgusted and appalled by the revolting photograph you used of a stuffed cobra and a mongoose ('Mongoose in the coils of a cobra', Volume Three, Number Two). As for it being a credit to taxidermy, neither of the poor creatures (which had both no doubt been needlessly slaughtered) were in anything like a natural position. I suggest to you that it was not the innocent animals that should have been stuffed but the taxidermist him/herself. I feel that a magazine such as yours should promote the well-being and welfare of an already persecuted species by condemning the use of snake skins, etc. for mankind's personal use (bags, shoes, etc) and indeed the animals themselves stuffed as ornaments.

We must do all we can to stop these people from getting rich at the expense of such poor creatures who are not having an easy time as it is what with habitat destruction and one thing and another.

Yours, Col G Pywell-Fox
Driffield

Editors' reply
Dear Col,

We are sorry that you found the photograph so revolting; its inclusion was an attempt to introduce a little humour into the magazine which, at times, seems too serious. If you examine the photograph closely you will see that the mongoose is tied to the cobra with a piece of string; the string also appears to have been used to represent the snake's tongue, obviously not state-of-the-art taxidermy. We do take your point though so please consider our knuckles rapped.

On a more serious note, we agree with your view that we should promote the well-being and welfare of these already persecuted animals. Let us not forget, however, that it is quite probable that more wild-caught snakes have died at the hands of snake keepers than ever fell victim to the taxidermist. It is easy to point an accusing finger at the producers of snake-skin products but perhaps we as a group must also shoulder some of the responsibility for the persecution and exploitation of wild snakes. In previous issues of Snake Keeper, Harry Sigg and Paul Hobson have described the appalling conditions under which snakes are kept prior to export for our benefit. We are sure you will agree that our demand for these animals is in part responsible for the way in which they are handled before shipment. Can we point with certainty to the line that divides us from the snake exploiters?

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1988 hatchling Hognose Snakes (Heterodon nasicus nasicus) male, wild-caught, feeding well, £45. Male Fat-tailed Geckos (sub-adults), approximately 5", £32.50 each. Male anerythristic Corn Snake (Elaphe guttata), hatchling, £35. 1988 Boa Constrictor, £90. 1987 male Carolina Corn Snake (Elaphe guttata), 3'+, £55. For further information phone (0305) 62311 early evenings or weekends. For 1989 price list send sae to (Barbarian Herpetologist) Jerry Cole, 6 Salisbury Terrace, Dorchester, Dorset DT1 1JT.

Northern Pine Snake. Approximately 6' plus tank and heater. £150. Telephone Hemel Hempstead 231786.

Hog Island Boa, approximately 3.5'. £150. Telephone (0895) 833734

Hog Island Boa. Superb condition and temperament, 4.5'. Feeding on dead young rats, £100. Florida King Snake. 4-4.5'. Perfectly handleable snake. Excellent condition and feeder. £70. Records available for both snakes. Tel: (0270) 623507 (Crewe).

FOR SALE

Nova electronic thermostat, as new, £10. Glass vivarium 24"x18"x18" (hxdxl) plus accessories, £10. Phone (0582) 400534 (Luton).

Large vivarium. 36" square plus log, gravel, heater. Free to good home. Tel: (0494) 433789 (Bucks).

Vivarium 50"x18"x24" with extras. Very sturdy with reinforced glass, £40. Small vivarium 24"x15"x15" with extras £20. Telephone Lance on (0279) 413614 (Essex).

Black Rat Snake, 4', male, £50. Breeding pair of Corn Snakes, mated this year, £140. One male Corn Snake, £50. Two adult male Banded Water Snakes. Very tame. Also 1 male baby. All captive bred/long term captive. For full details ring Billy on Runcorn 564457.

WANTED

Leopard Snakes (Elaphe situla) and male Carolina Corn Snake (Elaphe guttata). Phone Jerry Cole, (early evenings or weekends) on (0305) 62311.

Albino and melano Thamnophis. Full details (including subspecies) to R.J. Riches, 17 Deerhurst, Kingswood, Bristol BS15 1XH.

Male adult Yellow Rat Snake for breeding. A healthy feeding specimen will be given a luxurious home in one of my spacious purpose-built vivariums. The snake will be guaranteed first class care throughout its life. Adult female Great Plains Rat Snake (Elaphe guttata emoryi). Must be healthy and feeding well. Contact Col G Pywell-Fox, 24 George Street, Driffield YO25 7RA.

BOOKS

100's of books on fish, reptiles and amphibians, cats, dogs, birds, birdwatching and poultry. Free catalogue. Bures and Son, PO Box 377, Coulsdon, Surrey CR3 1YU. Tel: (0737) 556139.

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